

SOUTH FLORIDA INITIATIVE PHOSPHATE MINING BRIEFING

January 2002

*****DELIBERATIVE PROCESS - DO NOT RELEASE*****

Objective: Brief Deputy Waste Management Division Director on the nature of phosphate mining sites and potential consideration of sites under Superfund.

☐ INTRODUCTION OF POTENTIAL ISSUES

- Large Number of Radium Contaminated Facilities
- Multiple Risk Evaluation Approaches
- Possible Human Exposures
- NPL vs. NPL-Equivalent Remedial Approaches
- Mega Site Status

- 4 county area - began late 1800s
Hillsborough, Polk, Manatee, Hardee
Strip Mining Operation

☐ BACKGROUND

- 21 CERCLIS Phosphate Mining Sites
- Mining Industry Overview
- Nature of Facilities
- Nature of Hazards/Risks
- ESI Pilot Study

☐ DETAILED LISTING OF POTENTIAL ISSUES

- Differing Risk Evaluation Methodologies (see attached)
- NPL vs. NPL Equivalent
- Potential Regulatory Authorities
- NORM vs. TENORM
- Mega Site/National Consistency

Fed - HQ SF
Air
Rad
ATSDR
ACUE

☐ OTHER STAKEHOLDER INVOLVEMENT

- State (FDEP, Bureau of Mines, DOH)
- ATSDR
- Public
- Industry

State - Bureau Mines
DOH
H&E, Waste

☐ POTENTIAL RESPONSE APPROACHES

- No Action
- NPL
- NPL-Equivalent
- State-Lead

County -
Mine Owners
Community
Media



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SUMMARY OF RADIUM REMEDIATION CRITERIA FOR SOIL

Risk/Dose Based Criteria:

Agency/Criteria	Dose(mRem/yr)	Approx. Risk
EPA: PRGs/NCP Risk Range	0.05 to 15	10^{-4} to 10^{-6}
ATSDR, DOE, Most 2×10^{-3} 2×10^{-3} States, NRC ¹	100	2×10^{-3}
FDH Standard	500	1×10^{-2}

1 - NRC uses 100 mRem/yr for all doses, but for cleanup of radiation sources 25 mRem/yr is applied.

ARARs

Agency/Criteria	Concentration (-pCi/g)	Approx. Risk
Uranium Mill Tailings Radiation Control Act	5	$\approx 10^{-4}$

ILLUSTRATION OF GENERIC PRELIMINARY REMEDIATION GOALS FOR RESIDENTIAL, INDUSTRIAL, RECREATIONAL SCENARIOS

Scenario	Generic Scenario		Borden Chemical	
	Risk Range	Typical Soil Conc.	Ra ²²⁶ On-Site Soil Conc. Ranges	Risk Range
Recreational	10^{-4} to 10^{-6}	57 to 0.57 pCi/g	10 to 47 pCi/g	1.8×10^{-5} to 8.2×10^{-5}
Industrial	10^{-4} to 10^{-6}	2.6 to 0.026 pCi/g	10 to 47 pCi/g	3.8×10^{-4} to 1.8×10^{-3}
Residential	10^{-4} to 10^{-6}	0.51 to 0.0051 pCi/g	10 to 47 pCi/g	2×10^{-3} to 9.2×10^{-3}

SUMMARY OF RADIUM REMEDIATION CRITERIA STAUFFER CHEMICAL TARPON SPRINGS, FLORIDA

Scenario	Criteria (ARAR)	Approx. Risk
Facility Area	5pCi/g ¹	10 ⁻⁴
Off-Site (Homes, Driveways, Road Ways containing slag)	20 uR/hr (≈ 112 mRem/yr) ²	2 x 10 ⁻³
	200 mRem/yr	4 x 10 ⁻³
	500 mRem/yr	1x10 ⁻²

1 - Cleanup criteria for soil based on Uranium Mill Tailings Radiation Control Act.

2 - This standard is also from the UMTRCA and is to be applied for indoor exposures only.